



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/976,052 | 10/15/2001 | Hirokatsu Hayashi | HITA.0110 | 1675 |

7590

10/28/2003

Stanley P. Fisher
Reed Smith Hazel & Thomas LLP
Suite 1400
3110 Fairview Park Drive
Falls Church, VA 22042-4503

EXAMINER

NGUYEN, MINH T

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,052

Applicant(s)

HAYASHI ET AL.

Examiner

Minh Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,11-13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-9,11,16,17 and 20-23 is/are allowed.
- 6) ☒ Claim(s) 12,13,15,18,19,24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' amendment filed on 8/8/03 has been entered. Claims 1, 3-9, 11-13 and 15-25 are pending. The changes to claim 1 overcome the indefiniteness problem, and further, made the restriction requirements to claims 20-22 noted in paper number 5 unnecessary, and therefore, the restriction requirements are withdrawn. New grounds of rejections necessitated by the amendment are set forth below. This action is FINAL.

Claim Objections

2. Claims 1, 7, 12-13 and 15 are objected to because of the following informalities:

In claim 1, line 27, "to very a logical threshold" should be changed to -- to vary a logical threshold --.

In claim 7, line 8, "whose gate terminals" should be changed to -- wherein the gate terminals of said third and fourth channel type MOS transistors --.

In claim 12, line 9, "said third output terminal" should be changed to -- a third output terminal --,

line 13, "to very a logical threshold" should be changed to -- to vary a logical threshold --.

In claim 13, line 8, "said first n-channel type" should be changed to -- said second n-channel type --.

Art Unit: 2816

In claim 15, lines 23-24, "as three" should be deleted since it does not have any meaning in the paragraph.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-13 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 12, the recitation "and a signal in the reverse phase thereto" on line 17 is unclear, i.e., it is unclear if the recitation means the second circuit receives the second signal and the third signal which is a phase reverse of the second signal or mean something else. For further consideration, the last paragraph means the second circuit receives the second signal and the third signal which is a phase reverse of the second signal.

As per claims 13 and 24, these claims are rejected because of the indefiniteness of claim 12 discussed above.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2816

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12, 15 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by US

Patent No. 5,204,557, issued to Nguyen.

As per claim 12, Nguyen discloses a level conversion circuit (Fig. 4) comprising:

a first circuit (inverters 14 and circuit 40) including a first input terminal (IN) for receiving a first signal having a first signal amplitude ($V_{CC}=5$ volts, column 1, line 39), a first output terminal (the terminal connected to the lower line of the pair 44) for supplying a second signal having a second signal amplitude greater than said first signal amplitude and being in the same phase as said first signal (the signal on the lower line of the pair 44 has the voltage $V_{DD}=10$ volts, column 1, line 41 and of the same phase with the first signal), and a second output terminal (the terminal connected to the upper line of the pair 44) for supplying a third signal having a second signal amplitude greater than said first signal amplitude and being in the phase reverse to said first signal (the signal on the upper line of the pair 44 has the voltage $V_{DD}=10$ volts, column 1, line 41 and of the reverse phase with the first signal); and

a second circuit (circuit 42) configured to form a fourth signal (OUT) from a third output terminal (22), the fourth signal has the signal level of the second signal amplitude ($V_{DD}=10$ volts) and the fourth signal is changed by the variation of the second and third signals (because the second and third signals connect to the gates of the two upper FETs of the second circuit) whichever is faster in signal level change of the second and third levels (met because the faster the signal level changes, the FET having the gate connected to that signal level responses faster).

As per claim 15, this claim is rejected for the same reasons noted in claim 12, and further, the limitations recited on the last two paragraph are met because the number of FETs required for

Art Unit: 2816

the first signal travel through from nodes 18 to 22 are the same regarding the second and the third signals.

As per claim 24, inherently met because it is clear that the threshold level of the second circuit is determined by the gate widths of the FETs in the second circuit, and the gate width of a FET determines the threshold level of that FET (this fact is from textbook).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,204,557, issued to Nguyen.

As per claim 18, Nguyen discloses a level shifter as discussed in claim 12 herein above, but he does not explicitly disclose a further second level shifter (another species).

However, combining two level shifters in an integrated circuit is seen as an obvious modification for generating of other species as admitted by the Applicants (see paper number 7, election of species).

As per claim 19, the recited limitation is merely an intended use of the circuit.

As per claim 25, rejected for the same reasons noted in claim 24.

Art Unit: 2816

Response to Arguments

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 1, 3-9, 11, 16-17 and 20-23 are allowed after the claims are amended to overcome the minor informality objections noted in section 2 herein above since the prior art of record fails to disclose or suggest the inclusion of the four FETs in the second circuit and connected as recited in claim 1.

8. Claim 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claim 13 is allowable for the same reason noted in claim 1.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after


Art Unit: 2816

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is 703-306-9179. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

 10/27/03

Minh Nguyen
Primary Examiner
Art Unit 2816